

1 REMARKS

2 Status of the Claims

3 Claims 19, 20, 23, 27, 28, 35-38, 44, 46, 50-52, 54, 55, and 57-59 are pending in the present
4 application, new Claims 58 and 59 having been added in the present amendment, Claims 24-26, 30-
5 34, 45, 47-49, 53 and 56 having been canceled in the present amendment, Claims 1-18, 21-22, 29 and
6 39-43 having been previously canceled. Claims 19, 20, 23, 27, 35, 44, 46, 51, 52, 54, 55, and 57
7 have been amended to more clearly define the invention.

8 Claims Rejected Under 35 U.S.C. § 112

9 The Examiner has rejected Claims 51-57 as being indefinite due to the term *sample volume*.
10 This rejection has been addressed by replacing *volume* with *chamber*. Accordingly, the rejection
11 should be withdrawn.

12 Claims Rejected Under 35 U.S.C. § 103 over Jang in view of Lichtwardt

13 The Examiner rejected Claims 19, 27, and 44-47 under 35 U.S.C. § 103(a) as being obvious
14 over U.S. Patent No. 6,806,955 (Jang) in view of U.S. Patent No. 5,902,749 (Lichtwardt). Jang
15 discloses a system configured to determine fiber properties based on fluorescence, and Lichtwardt
16 discloses adding a fluorescent dye to a pesticide, to enable the concentration of a pesticide in a flow
17 of water to be readily measured (thereby enabling the amount of pesticide being added to the water
18 flow to be increased or decreased as required to maintain a constant pesticide concentration).
19 Applicants respectfully disagree for the following reasons.

20 In the interest of reducing the complexity of the issues for the Examiner to consider in this
21 response, the following discussion focuses on independent Claims 19, 44 and 46. The patentability of
22 each remaining dependent claim is not necessarily separately addressed in detail. However, applicants'
23 decision not to discuss the differences between the cited art and each dependent claim should not be
24 considered as an admission that applicants concur with the Examiner's conclusion that these dependent
25 claims are not patentable over the disclosure in the cited references. Similarly, applicants' decision not
26 to discuss differences between the prior art and every claim element, or every comment made by the
27 Examiner, should not be considered as an admission that applicants concur with the Examiner's
28 interpretation and assertions regarding those claims. Indeed, applicants believe that all of the dependent
29 claims patentably distinguish over the references cited. In any event, a specific traverse of the rejection
30

of each dependent claim is not required, since dependent claims are patentable for at least the same reasons as the independent claims from which the dependent claims ultimately depend.

Patentability of Independent Claim 19

Claim 19 as amended recites the following structure:

means for reducing an amount of stain in solution in the flow cell to an extent desired without undesirably reducing an amount of stain that is bound to the pulp fiber sample

Lichtwardt discloses adding a fluorescent dye to a pesticide in some known proportion. While relatively sophisticated detection equipment is required to determine the amount of a pesticide in a given sample, the amount of a fluorescent dye in a given sample can be determined using a relatively inexpensive fluorescent detector. By introducing the pesticide and dye in a known proportion, the inexpensive fluorescent detector can be used to monitor the amount of pesticide present. For Lichtwardt's application, this is important, because the pesticide was being added to a body of water (i.e., a canal) whose volume was constantly changing (due to varying inflow of water from other areas). Thus, the amount of pesticide in the body of water needed to be measured regularly, so that the proper amount of additional pesticide could be added to the body of water to maintain a desired pesticide concentration.

Referring to the means recited in Claim 19, applicants understand why Lichtwardt might be considered to disclose *means to control an amount of stain in solution in the flow cell to an extent desired*, since Lichtwardt determines what a desired pesticide concentration is, then based on the proportion of pesticide to dye in the water, determines what the desired dye concentration is, then monitors and controls the dye concentration to maintain the dye concentration at the desired level. Claim 19 has been amended to recite *means for reducing an amount of stain in solution*. In contrast, the only real control Lichtwardt has over the dye concentration is in controlling how much dye is added to the body of water. Lichtwardt's application doesn't really relate to, teach, or suggest *reducing* the amount of dye in solution.

Even more significantly, reducing the amount of stain in solution is only a portion of the recited means. The means recited in Claim 19 includes an additional function not present in or suggested by Lichtwardt's application. That additional function is "*without undesirably reducing an amount of stain that is bound to the pulp fiber sample*." The means recited in Claim 19 is function operative on two different types of stain/dye; the stain in solution, and the stain attached to fibers in

1 the solution. The means must be able to reduce the amount of stain in solution without reducing the
2 stain attached to the fibers in the solution. Lichtwardt is absolutely silent with respect to “*reducing*
3 *an amount of stain in solution without undesirably reducing an amount of stain that is bound to the*
4 *pulp fiber sample*,” and thus, Lichtwardt cannot be considered to disclose or suggest an equivalent
5 means. Jang does not correct this problem. Therefore, the combination of Jang and Lichtwardt does
6 not achieve an equivalent to that which is claimed by applicants, and the rejection of Claim 19 should
7 be withdrawn.

8 Since dependent claims inherently include all of the recitation of the independent claim on
9 which they ultimately depend, for at least the same reasons as noted above in connection with
10 independent Claim 19, the rejection of dependent Claim 27 should also be withdrawn.

11 Patentability of Independent Claim 44

12 As amended, Claim 44 corresponds to rewriting Claim 49 (to which the Examiner objected) in
13 independent form. Claim 44 thus distinguishes over the cited art and should be allowed.

14 Claim 45 has been canceled.

15 Patentability of Independent Claim 46

16 As amended, Claim 46 corresponds to rewriting Claim 48 (to which the Examiner objected) in
17 independent form. Claim 46 thus distinguishes over the cited art and should be allowed.

18 Claims 47-49 have been canceled.

19 Patentability of Dependent Claim 27

20 Claim 27 as amended recites that the “*apparatus is configured such that light from the light*
21 *source used to stimulate fluorescence from the pulp fiber sample and fluorescence emitted from the*
22 *pulp fiber sample pass through the same transparent wall of the flow cell*.” U.S. Patent No.
23 5,436,717 (Ogino) discloses light entering a flow cell and fluorescence exiting a flow cell; however,
24 in each embodiment disclosed by Ogino, the excitation light and the fluorescence light respectively
25 enter and exit from opposite sides of the flow cell.

26 Applicants’ design provides a more compact apparatus. Applicants’ FIGURE 3 clearly shows
27 light entering and exiting the flow cell using the *same transparent wall*. The cited art does not teach
28 the recited configuration, and there appears to be no reason to modify the cited art to achieve an
29 equivalent configuration, absent the impermissible application of hindsight. Claim 27 thus
30 distinguishes over the cited art, and the rejection of Claim 27 should be withdrawn.

1 Claims Rejected Under 35 U.S.C. § 103 over Jang in view of Lichtwardt & Ogino

2 The Examiner rejected Claims 20, 23-26, and 50 under 35 U.S.C. § 103(a) as being obvious
3 over Jang in view of Lichtwardt, further in view of Ogino. Jang discloses a system configured to
4 determine fiber properties based on fluorescence, and Lichtwardt discloses adding a fluorescent dye
5 to a pesticide, to enable the concentration of a pesticide in a flow of water to be readily measured
6 (thereby enabling the amount of pesticide being added to the water flow to be increased or decreased
7 as required to maintain a constant pesticide concentration). Ogino discloses an optical system
8 including structural elements such as light sources, a sample chamber, dichroic mirrors, and
9 detectors. Applicants respectfully disagree with the Examiner for the following reasons. (Note that
10 Claims 24-26 have been canceled; thus, their rejection is moot.)

11 Patentability of Dependent Claim 20 and Independent Claim 50

12 Claim 20 as amended and Claim 50 define the structural relationship between the
13 fluorescence excitation light source, a first dichroic mirror, the flow cell including the sample in
14 which fluorescence will be stimulated, and a detector for measuring the fluorescence. Significantly,
15 this structure requires that the mirror perform both of the following functions:

16 *to direct light from the light source to the pulp fiber sample in the flow cell*

17 *and*

18 *to enable fluorescence from the pulp fiber sample in the flow cell to pass through the mirror*
19 *before reaching the detector.*

20 In other words, the structure recited in Claims 20 and 50 require a mirror that both directs
21 light into a sample chamber, and passes light from the sample chamber toward a detector. While
22 Ogino discloses multiple dichroic mirrors, one of which directs light to a sample chamber, and
23 another that directs light from the sample chamber to a detector, Ogino does not teach or suggest any
24 *single* dichroic mirror that performs both functions.

25 Applicants' design provides a more compact apparatus that requires fewer mirrors. The cited
26 art does not teach or suggest using a mirror in an equivalent manner (such that a single mirror both
27 directs light to a sample volume, and also, from the sample volume to a detector). This structure is
28 shown in applicants' FIGURE 3 (see mirror 44).

29 The cited art does not teach the recited configuration, and there appears to be no reason to
30 modify the cited art to achieve an equivalent configuration, absent the impermissible application of

hindsight. Claims 20 and 50 thus distinguish over the cited art, and the rejection of such claims should be withdrawn.

It should also be noted that Claim 20 depends from Claim 19, whose patentability has been discussed above, and Claim 20 is patentable for at least the same reasons.

Patentability of Dependent Claim 23

Claim 23 as amended recites a first dichroic mirror that directs light toward a sample, and a second dichroic mirror that directs light from the sample toward a detector, such that no additional optical elements are disposed between the first and second dichroic mirrors. This configuration is clearly shown in applicants' FIGURE 3 (see mirrors 44 and 48).

While Ogino clearly discloses dichroic mirrors that direct light toward a sample, and dichroic mirrors that direct light from the sample toward a detector, none of the embodiments disclosed by Ogino includes a structure wherein no additional optical element is disposed between a first dichroic mirror that directs light toward a sample, and a second dichroic mirror that directs light from the sample toward a detector.

The cited art does not teach the recited configuration, and there appears to be no reason to modify the cited art to achieve an equivalent configuration, absent the impermissible application of hindsight. Claim 23 thus distinguishes over the cited art, and the rejection of Claim 23 should be withdrawn.

It should also be noted that Claim 23 depends from Claim 19, whose patentability has been discussed above, and Claim 23 is patentable for at least the same reasons.

Claims Rejected Under 35 U.S.C. § 103 over Jang in view of Lichtwardt & Holm

The Examiner rejected Claims 32-34 under 35 U.S.C. § 103(a) as being obvious over Jang in view of Lichtwardt, further in view of U.S. Patent No. 4,172,524 (Holm). The Examiner asserts that Holm discloses multiple cameras and synchronization, as recited in these claims. Claims 32-34 have been canceled; thus, their rejection is moot.

Claims Rejected Under 35 U.S.C. § 103 over Jang in view of Ogino

The Examiner rejected Claims 51 and 56 under 35 U.S.C. § 103(a) as being obvious over Jang in view of Ogino. The Examiner explains that Jang discloses a system configured to determine fiber properties based on fluorescence, and Ogino discloses an optical system including structural elements such as light sources, a sample chamber, dichroic mirrors, and detectors.

However, Claim 51 as amended corresponds to rewriting Claim 53, to which the Examiner objected, in independent form. Claim 51 as amended thus distinguishes over the cited art.

Claim 56 has been canceled; thus, its rejection is moot.

Patentability of Claims 52, 55, and 57

Claims 52, 55, and 57, to which the Examiner objected, have been amended to place them in independent form, including each element of the base claim and any intervening claims. Claims 52, 55, and 57 as amended thus distinguish over the cited art.

Patentability of New Claim 58

New Claim 58 corresponds to rewriting Claim 31, to which the Examiner objected, in independent form. Claim 58 as amended thus distinguishes over the cited art.

Patentability of New Claim 59

New Claim 59 corresponds to rewriting Claim 30, to which the Examiner objected, in independent form. Claim 59 as amended thus distinguishes over the cited art.

In consideration of the amendment to the claims and the Remarks set forth above, it is applicants' position that all claims in the current application are patentable over the art of record. The Examiner is thus requested to pass this case to issue without further delay. In the event that any other issues remain, the Examiner is invited to telephone applicants' attorney at the number listed below.

Respectfully submitted,

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